Jifon AquaHeat™

A groundwater heat pump

User Manual

Installation Manual, Planning Manual

Three phase 400 V

- **AquaHeat™ 13**
- **AquaHeat™ 18**

Doc: AH-01

EN

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Contents

Introduction 4

Safety Instructions 5
Introduction 7

User Manual 9

Included Parts 9
Temperature Setting 12
Care and Maintenance 14
Troubleshooting 15
Recycling and Dismantling 16
Technical Data 16
Declaration of Conformity 17

Installation Manual 18

Checklist 18
Unpacking and Inspection of Material 18
Lifting/Unloading 18
Mounting of the evaporator 19
Shape Pipes 19
Placement of the Heat Pump Module 19
Connecting to an Existing Heating System 20
Installing and Connecting the Control Panel 23
Placement of the Air Temperature Sensor 23
Pressure Test 23
Vacuum Drive 23
Refrigerant 23
Operation Start-up 24
Temperature Setting 25
Parameter List 26
Installation Checklist 27
Wiring Diagrams (Three phase 400 V) 28
Measurements and Connections 31
Technical Data 31

Planning Manual 32

Electricity 32
Transport and Storage 32
Preparations 33
Additional Heating and Water Heating 35

JIFON

Introduction

Congratulations! When you chose the Jifon heat pump, you chose a heat pump system which is a more energy-saving concept than traditional heat pumps. The system examines a list of parameters to ensure that the operation always is machine-friendly and energy-efficient.

How much heat a house needs, is dependent on many different factors. During a part of the year, the house gets enough energy from the sun, people and household appliances. The house often needs more heat during autumn, winter and spring. How much more is necessary to keep the house warm, depends on the insulation of the house, the type of domestic heating system installed, the outdoor temperature, the weather conditions and losses through ventilation.

JiControl™, the control panel of the system, handles this for you by floating condensation, which is by only producing as much heat as the house needs to maintain an even indoor temperature.

Safety Instructions

Always follow the safety instructions in this manual as well as on signs and markings on and around the machine in order to prevent damage to person and machinery.

The heat pump may only be used in accordance with the instructions in this manual. All other use is forbidden. Incorrect use caused by not following the instructions in this manual may result in damage to property, and at worst in personal injury.

If problems arise with the AquaHeat™ heat pump, refer to the Troubleshooting chapter before you contact Jifon. If you need a service engineer, only contact authorized service engineers. All adjustments, other than room temperature are strictly forbidden.

All maintenance work must only be carried out by authorized personnel.

This document should be kept for the lifetime of the heat pump.

Manual Symbols

The following symbols occur in the manual to help you when you read the directions.

WARNING!

Make sure that the current is disconnected before any maintenance work is started.

Safety directions. This symbol is used when a dangerous situation may arise.

NOTE!

It is important that all radiators are completely open in order for the heat pump to work optimally.

Advice. This symbol is used when we want you to pay attention to something important.

Machine Signs

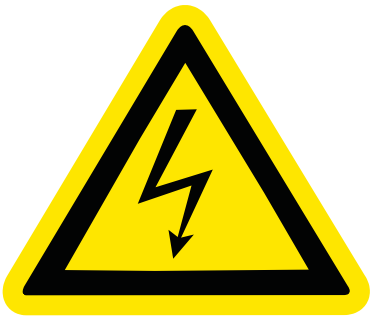
JIFON

CE

Model:
Serialno:
Refrigerant: Amount:
Safety relief pressure
HP-side bar LP-side bar

Made in Sweden

CE - Sign



High Voltage Sign

NOTICE TO INSTALLER!

- THIS THREE-PHASE UNIT IS ROTATION SENSITIVE
- USE SERVICE GAGES WHEN STARTING
- SWITCH ANY TWO COMPRESSOR POWER LEADS AT THE CONTACTOR TO CHANGE ROTATION DIRECTION

REVERSE RUNNING

- COMPRESSOR IS LOUD
- DISCHARGE PRESSURE CHANGES VERY LITTLE
- SUCTION PRESSURE CHANGES VERY LITTLE
- SUCTION TUBE NEAR COMPRESSOR SHELL GETS HOT AFTER 1-2 MINUTES OF RUNNING

JIFON

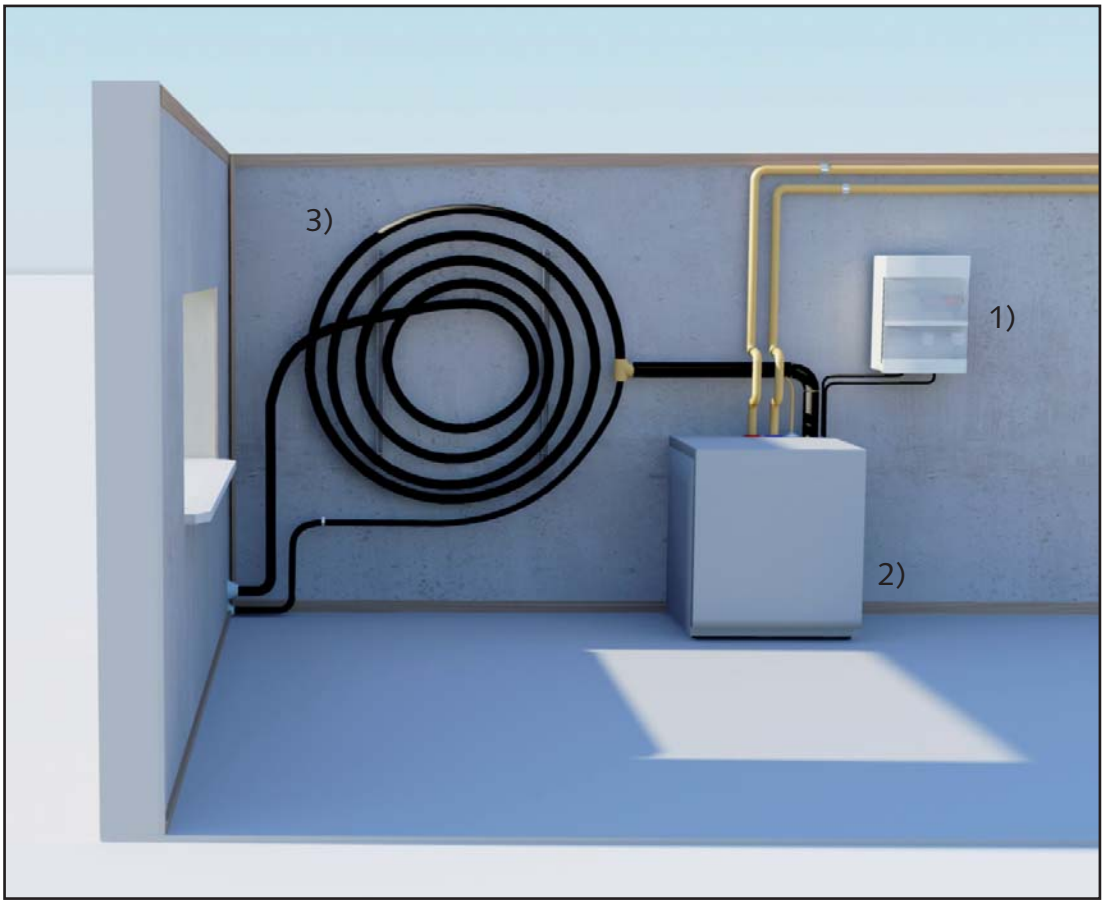
Information to installer

Introduction

System Description

The system consists of a control panel (1), heat pump module (2) and a evaporator (3).

The heat pump heats the house waterborne systems by extracting energy from ground-water. The control panel manages control of the heat pump and supplement heat source. Using an indoor sensor, it ensures that an even temperature is maintained regardless of weather conditions.



a) JiControl™ (control panel)
b) Greenbox™ (heat pump module)
c) AquaHeat™ (evaporator)

Operation

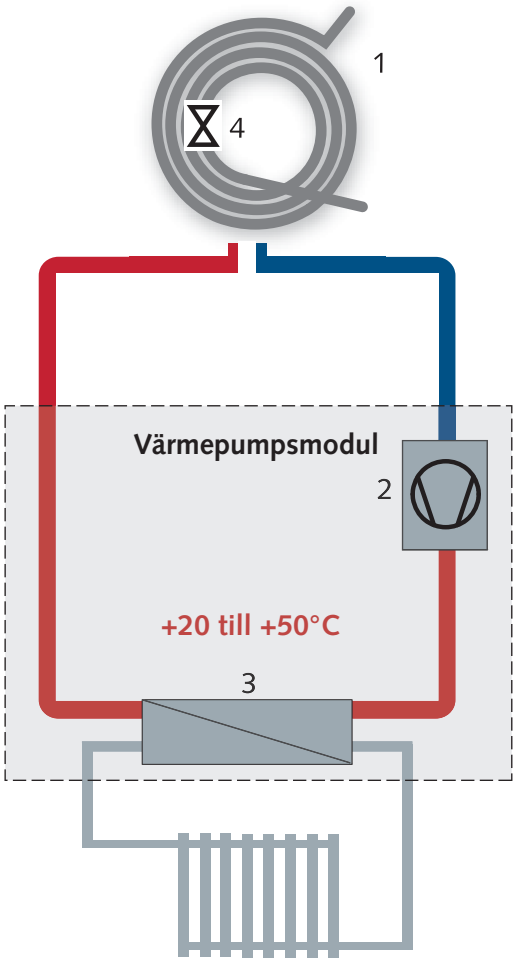
Two copper pipes are connected to the evaporator. One pipe transfers fluid to the AquaHeat™. The other pipe transfers energy filled gas to the heat pump module. Energy is transferred to the buildings hydronic heating system by the heat pump module. The heated water is then pumped around the building.

1. The heat gathering part - low pressure
This part of the heat pump is called the evaporator (AquaHeat™). A refrigerant with a low temperature flows through the evaporator. The AquaHeat™ is heated by water, evaporating the refrigerant.

2. The preassure rising part - High pressure
This part consists of a compressor. The heated and evaporated refrigerant is compressed by the compressor. The increase in pressure raises the temperature and condensation point (the point where gas returns to liquid form).

3. The heat emitting part - High pressure
This part of the heat pump transfers the heat to the house and is called the condensor. The refrigerant passes through the condensor at a high temperature and condensation point. In the condensor, the refrigerant is cooled down by the heating system of the house (such as radiators or floor heating), leading to the condensation of the refrigerant (returning it to liquid form).

4. Pressure lowering part - Low pressure
This part consists of a throttling device. The cooled refrigerant expands and both the temperature and the boiling point of the refrigerant is significantly lowered as a result of the lower pressure.



User Manual

Included Parts

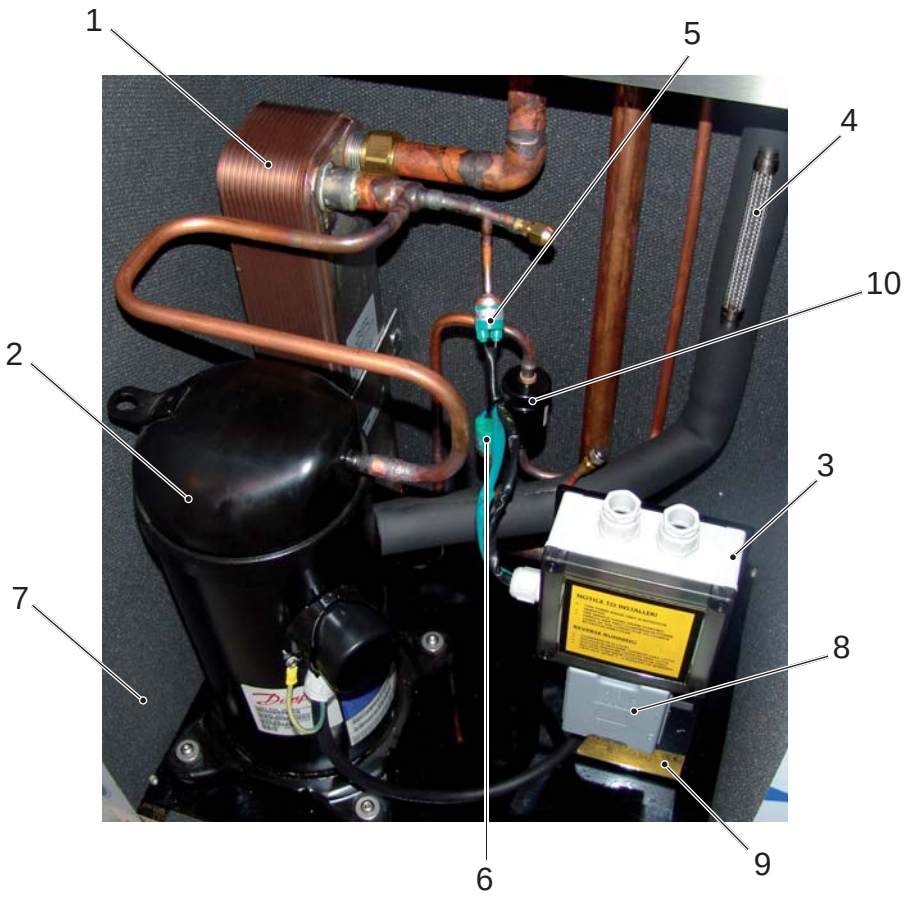
AquaHeat™

Aqua Heat consists of a PEM (polythene) tube with copper tubes inside which are rotated around a loop. This acts as an evaporator with natural regulation of the liquid and gas volume of the refrigerant in the system.

GreenBox™

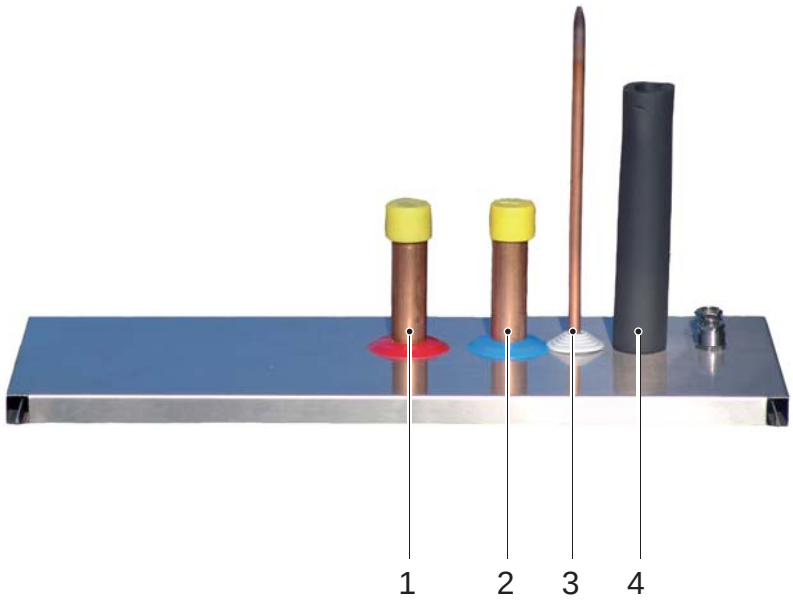
The heat pump module consists of the following:

1. A compressor. The compressor increases the pressure on the refrigerant and in doing so increases the temperature.
2. A heat exchanger (the condensor). Within the heat exchanger the hot gas transfers its energy to the hydronic heating system.
3. A junction box. The control panel is to be wired into this box.
4. A vibration absorber
5. A high pressure sensor
6. A low pressure sensor
7. Flameproof insulation
8. A safety switch
9. CE-sign
10. A drying filter



1. Heat exchanger
2. Compressor
3. Junction box
4. Vibration absorber
5. High pressure sensor
6. Low pressure sensor
7. Flameproof insulation
8. Safety Switch
9. CE-Sign
10. Drying filter

On the top side of the heat pump module there are two pipes (inflow and outflow) for the refrigerant and two pipes (inflow and outflow) for water.



1. Water, out (red)
2. Water, in (blue)
3. Refrigerant, out
4. Refrigerant, in

JiControl™

The control panel controls the heating system for the entire house and has one digital thermostats.

The digital thermostat MCX controls the temperature in the room where the air temperature sensor is placed. The air temperature sensor is to be placed in a suitable location in the house. Read more about the air temperature sensor below. It also controls the temperature of the hot water from the heat exchanger safety. The control panel also controls the pressure in the compressor (high or low pressure).

Air Temperature Sensor

The air temperature sensor measures the actual temperature of the room/house. The sensor provides data for the heat pump control panel to work with.

It is important that the air temperature sensor is placed in a room (or in a location) in the house where the highest average temperature is required. The air temperature sensor has to be placed where it is changed by the Jifon heating system of the room/house such as floor heating and radiators and not by local sources of heat such as lamps, stoves, and direct sunlight. The air temperature sensor should not be placed on external walls.

Temperature Setting

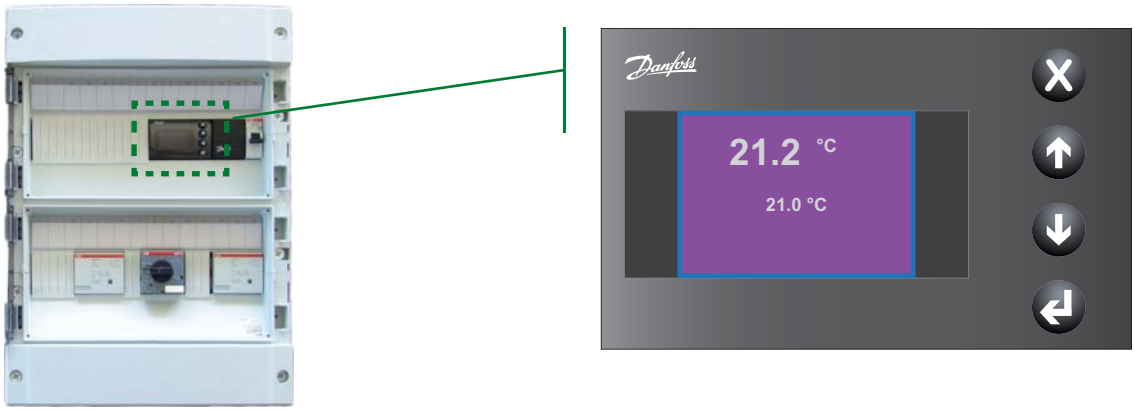
Temperature Regulation

The regulation of the temperature in the house is done with the digital MCX control. The factory default setting air temperature setpoint is 21°C.

When the air temperature sensor measures a temperature that is 0.1°C below the control panel value the compressor is started with a delay of 500 seconds. If the measured temperature is 0.5°C below the control panel value the boost is started, this also occurs with a delay of 500 seconds. If floor heating is used the boost should be set to not start until the measured temperature is 1.0°C below the control panel value, see Installer Manual.

When there is no temperature difference between the air temperature sensor value and the control panel value the compressor and the additional heating is turned off.

The heat pump has a default setpoint setting of 21°C. To change the air temperature setpoint use the Up/Down button.



Heat Pump Protection

NOTE!

This value must only be changed by Jifon AB or authorized personnel.

The factory setting is 50°C and must only be changed by Jifon AB or authorized personnel.

The compressor is automatically shut off at the setpoint value (50°C) to protect the compressor and it starts again when the water temperature is 5°C below the setpoint value.

Additional Heating

Additional heating should be installed if it is not already installed.

During the coldest months of the year the heat pump might need additional heating to keep a constant temperature within the building. If the heat pump is forced to maintain an indoor temperature that is higher than its performance capacity and no additional heating is available it has to work continuously, thus not giving the heat pump the off times it needs. This can result in the evaporator freezing up to a point when its efficiency is lowered.

The different heat pump modules can be connected to all hydronic heating systems such as district heating, electric element, oil- , gas-, or pellet boiler.

Radiators

NOTE!

All radiators must have open valves in the rooms that are to be heated.

Care and Maintenance

Controls

If the heat pump should stop functioning, consult the troubleshooting section of this manual. If the problem persists, contact your installation technician for further instructions and assistance.

Defrosting of the AquaHeat

Defrosting of the AquaHeat coil is done automatically.

Change of Components

NOTE!

Change of components must only be performed by authorized personnel.

When a component is changed the new component must be equivalent to the original.

When changing the compressor the filter must be changed as well.

Only weld in a well-ventilated area.

Troubleshooting

Description	Probable Cause	Solution
The house is not getting warm	The settings for the control panel are wrong	Check the settings for the control panel (see Control Panel, page 12)
	The additional heating is not working	Contact your installation technician
The HP or LP is displayed under the error section	During extreme or long-running cold weather this can be normal	• Open all thermostats in the house, deareate the radiators/system • Check that the circulation pump is operating • Contact your installation technician
	May be caused by either too much or not enough refrigerant	
	May be caused by bad circulation within the house	
The heat pump is loud and does not produce heat	The electrical phase is wrong	Turn off the heat pump with the motor protection (safety switch and contact your installation technician/electrician
The compressor does not start	The motor protection is tripped / the safety fuse is tripped	Reset the safety fuse followed by the motor protection. Contact your installation technician

Recycling and Dismantling

NOTE!

All current to the heat pump must be disconnected before dismantling can begin.

When the heat pump is to be dismantled and recycled, follow these instructions:

- Draining of the refrigerant must be performed by accredited personnel.
- The compressor shall be sent to an appropriate recycling centre.
- All other hardware shall be sorted and recycled.

Technical Data

Model AquaHeat™	**Unit**	13kW	18kW	25kW
Electrical connection		400 V, N3 phases		
Fuse	A	16D		25D
Compressor, type		Scroll		
Compressor, maximum input	kW	4,26	5,66	8,47
Compressor, displacement	m^3/h	14,1	19,3	28,3
Maximum water temperatures	°C	55		
Refrigerant R407c	kg	~1,8	~2	~4
Cut-off pressure min/max R407c	bar	0,5/31		
Minimum water flow	l/min	20	40	65
Dimensions GreenBox (HxWxD)	mm	730x590x500		
Weight GreenBox	kg	95	102	120
JiControl control panel	size	16	16	25

DECLARATION OF CONFORMITY/MANUFACTURER´S DECLARATION
FÖRSÄKRAN OM ÖVERENSSTÄMMELSE/TILLVERKARDEKLARATION

Directive area *Direktivets område*	**Directive no** *Direktiv nr*
Safety of machinery *Maskindirektivet*	98/37/EG
Low voltage equipment *Lågspänningsdirektivet*	2006/95/EC
Electromagnetic compatibility *Elektromagnetisk compatibilitet*	2004/108/EC
Pressure equipment *Tryckbärande anordning*	97/23/EC article 3.3

Manufacturer name, address, telephone and fax no: *Tillverkarens namn, adress, telefon och faxnummer:*
Jifon AB Verkstadsgatan 1, SE-280 10 Sösdala, Sweden Telephone: +46(0)451-70 54 60, Fax: +46(0)451-600 12

Brand name or trademarke *Fabrikatnamn eller varumärke*	JIFON

Type of equipment *Typ av utrustning*	**Heat pump 1-phase 220 V and 3-phase 380 V** *Värmepump 1-fas 220 V och 3-fas 380 V*

Type designation etc. *Typbeteckning etc.*	
Name *Namn*	**Size** *Storlek*
AquaHeat	13, 18, 25

By signing this document, the undersigned declares as manufacturer that the equipment in question complies with the protection requirements of the above directive.
Genom att underteckna detta dokument försäkrar undertecknad såsom tillverkare att angiven utrustning uppfyller skyddskraven i rubricerade direktiv.

Date / Datum	Signature / Underskrift	Position / Befattning
2012-02-15	Clarification / Namnförtydligande Amrish Kapoor	Head of R&D / Utveckl.chef

Installation Manual

Checklist

Before starting the installation, check that the items listed below are attended to:
- Space requirements in regards to installation and services
- Dimensions of pipe and canal connections
- Holes in the wall for pipes and cables
- Supply of electricity

If any of these items are not attended to, please follow the instructions in the Planning Manual.

Before starting the installation, check that the items listed below are attended to:
- Same current on all electrical phases (not required when single phase)
- Capacity of the main fuse (it must be suitably rated)

Unpacking and Inspection of Material

Unpack the material and check to see that it has nothing missing or anything damaged due to transportation. Any damages due to transportation should be immediately reported to the transporter and to Jifon AB.

Lifting/Unloading

Consider the following when lifting/unloading the AquaHeat coil and the heat pump module:
- Be careful not to damage the material when lifting and unloading.
- A lifting device or a minimum of 3 people are recommended when unloading.
- The heat pump module must only be transported in the vertical position.

NOTE!

Secure tightly to ensure that the units are unable to turn over or slide out of the lifting device.

Mounting of the Evaporator

NOTE!

Note that condensation may form around the evaporator

The evaporator

- We recommend that there is runoff potential (a drain) under the evaporator, whereby condensation may form
- Control of water quality, see salt, iron and manganese, etc., high levels may damage the evaporator (copper)
- Water flow must be established (liters / min)

Hole in the wall / floor

NOTE!

Must be performed by skilled personnel

NOTE!

Think of the risk of freezing in the walls

Shape the Pipes

All piping and moulding of tubes must be performed by accredited personnel according industry standard.

When joining copper to copper, 5% silver solder should be used.
When joining copper to corrosion metal 55% silver solder should be used.

Placement of the Heat Pump Module

- Heat pump module should stand straight, ie. 0% slope of the floor.
- Heat pump module should always be accessible for service. Working space in front of the heat pump module should be at least 1 meter, see page 33 for dimensions.
- No heavy objects should be placed on top of the heat pump module.
- It is forbidden to jump / step / stand on the heat pump module.
- The floor of the room where the heat pump module is located must be dry. Make sure that water can not drip down from the ceiling and enter the heat pump.
- No items may be hung on the heat pump pipe installation.

Connecting to an Existing Heating System

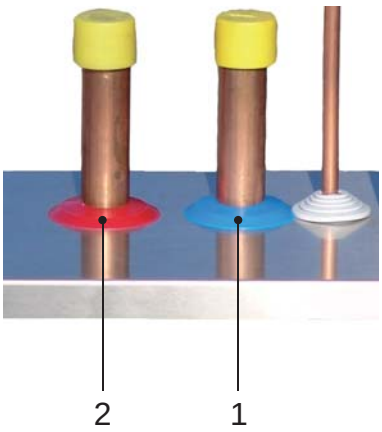
NOTE!

Jifon recommends installing preheating when tap hot water is to be heated (see page 21-22 for more information).

Jifon recommends using flexible connection hoses for vibration dampening when connecting the heat pump module to an existing heating system.

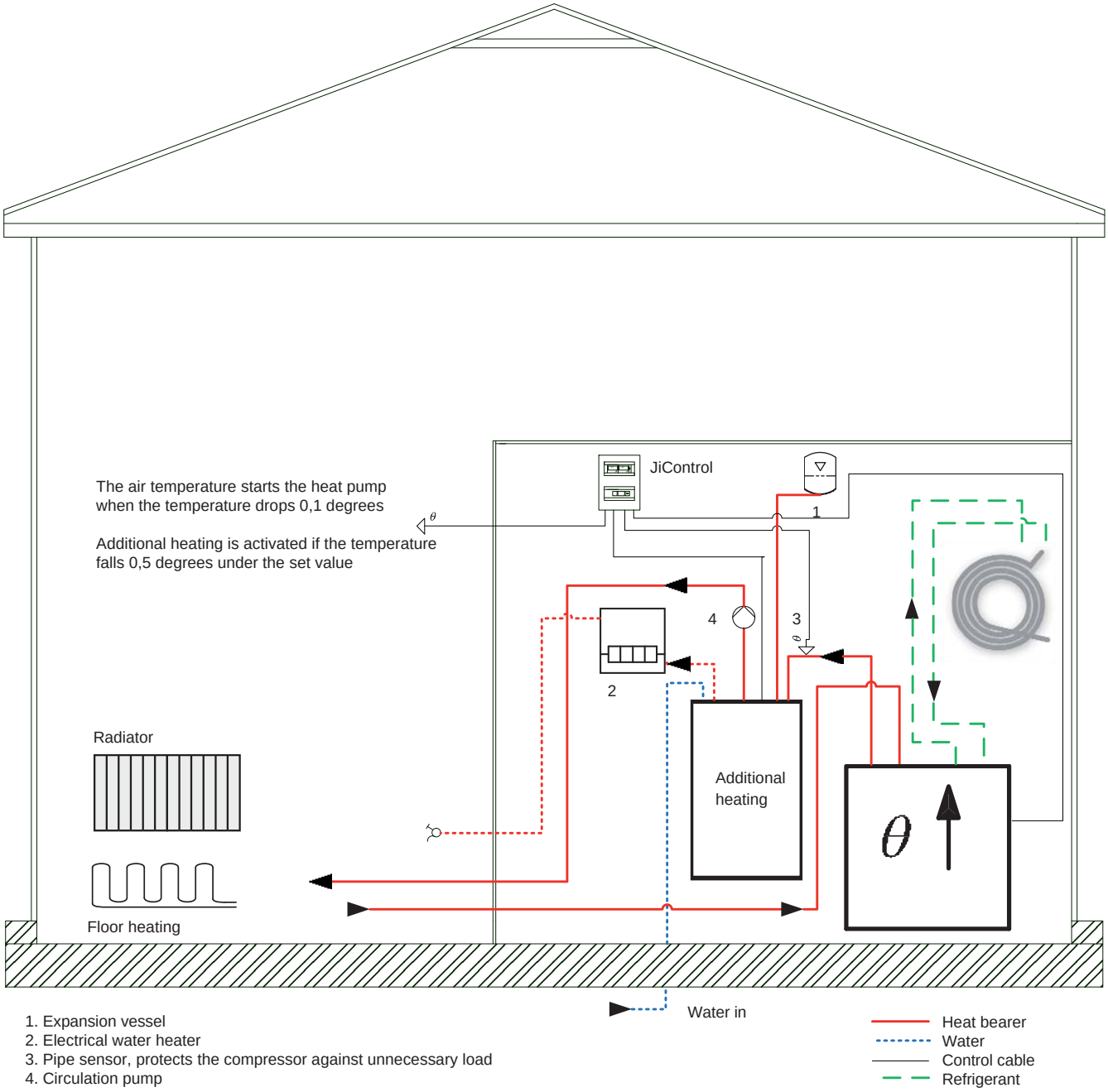
The following applies when connecting water pipes to the heat pump module, regardless of model:

- The connection for incoming water is marked with blue.
- The connection for outgoing water is marked with red.

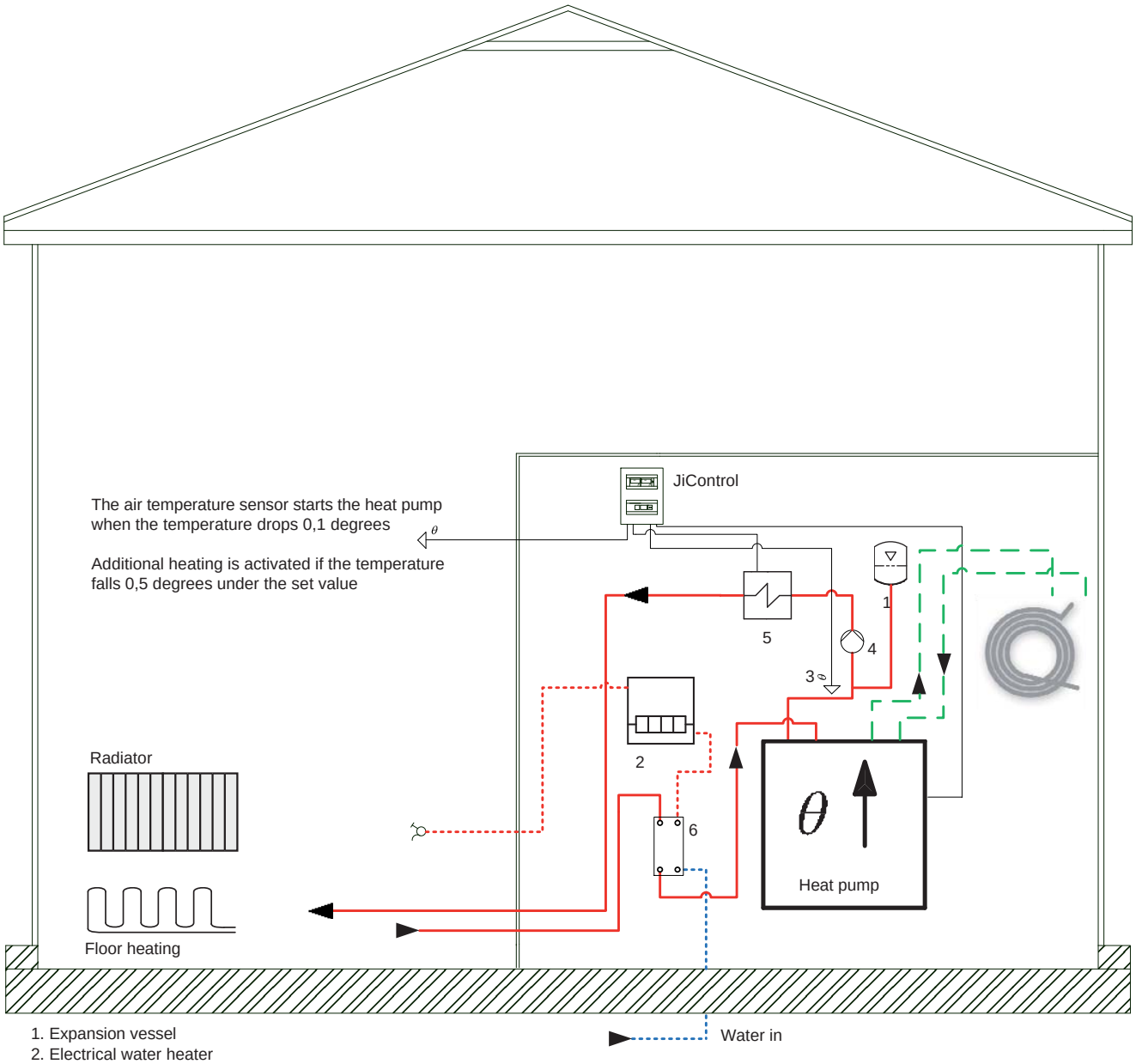


1. Connection for incoming water to the heat pump module.
2. Connection for outgoing water from the heat pump module.

TA1


The air temperature starts the heat pump when the temperature drops 0,1 degrees
Additional heating is activated if the temperature falls 0,5 degrees under the set value
JiControl
1
2
3
4
Radiator
Floor heating
Additional heating
Water in
1. Expansion vessel
2. Electrical water heater
3. Pipe sensor, protects the compressor against unnecessary load
4. Circulation pump
Heat bearer
Water
Control cable
Refrigerant

TA2



1. Expansion vessel
2. Electrical water heater
3. Pipe sensor, protects the compressor against unnecessary load
4. Circulation pump
5. Electrical element (additional heating)
6. Plate heat exchanger, enables pre-heating of hot water

Heat bearer
Water
Control cable
Refrigerant

Installing and Connecting the Control Panel

NOTE!

The heat pump module shall always be connected to a permanent electrical installation.

- The control panel should be installed near the heat pump module.
- All electrical work is to be done by authorized personnel according to the wiring diagrams (see pages 28-30).

Placement of the Air Temperature Sensor

It is important that the air temperature sensor in the house is placed in the room (or location) where the highest average temperature is required. It is also important that the air temperature sensor is placed in the room where it is affected by the Jifon heating system of the room/house, such as floor heating and radiators, and not by any local heat source such as lamps, stoves or direct sunlight. The air temperature sensor should not be placed on external walls.

Pressure Test

A pressure test is performed to check that all parts of the refrigerant will mechanically keep during the normal running pressure at the factory. This is done with nitrogen gas.

The pressure test is done according to industry standard.

Vacuum Drive

The two things that is desired to accomplish by performing a vacuum drive are:

1. Acquire a system that is completely free of any other gas than the refrigerant.
2. Acquire a system that is completely without moisture.

Perform a vacuum drive according to industry standard.

Refrigerant

NOTE!

Filling the refrigerant must be performed by accredited personnel

NOTE!

Filling the refrigerant occurs at deployment

Operation Start-up

NOTE!

To be able to quickly start the compressor, the setting on the control panel displays must be changed (see Delay Setting on page 25). In operation mode this is set to 500 seconds but can be set to 10 seconds during operation start-up or service.

- After a pressure test and a vacuum drive are performed on the heat pump, refrigerant can be added.
- Connect a manometer to the valves of the low- and high pressure pipes.
- Add refrigerant until the high pressure warning is turned off.
- The compressor can now be started, letting it draw additional refrigerant from the low pressure pipe.
- If the condensation is exceptionally high this might be because there is to much refrigerant in the system or it might be due to bad circulation.

Bad circulation is usually caused by:
- The circulation pump
- Air in the system
- Closed valves
- The water flow has been wrongly connected through the heat pump

Compressor Startup (only three phase unit)

The compressor is a three-phase unit that is sensitive to the rotation direction and can be damaged if in operation with a faulty rotation direction during longer periods of time. To change the rotation direction, switch two incoming phases. Check the compressor drive at operation start-up.

During normal operation:
1. The peak pressure increases rapidly
2. The suction pressure decreases rapidly
3. The hot gas pipe is warm within 5-10 seconds after start-up

During faulty rotation direction:
1. The compressor is loud
2. The peak pressure does not changed
3. The suction pressure does not changed

Refilling and Deareating

After operation start-up of the heat pump the following is to be checked:
1. The water pressure
2. That there is no air in the radiator circuit or in the circulation pump

Temperature Setting

Temperature Regulation

The regulation of the temperature in the house is carried out by the digital MCX control. The factory default setting air temperature setpoint is 21°C.

When the air temperature sensor measures a temperature that is 0.1°C below the control panel value the compressor is started with a delay of 500 seconds. If the measured temperature is 0.5°C below the control panel value the boost is started, this also occurs with a delay of 500 seconds. If floor heating is used the boost should be set to not start until the measured temperature is 1.0°C below the control panel value.

When there is no temperature difference between the air temperature sensor value and the control panel value the compressor and the additional heating is turned off.

The heat pump has a default setpoint setting of 21°C. To change the air temperature setpoint use the Up/Down button.

Heat Pump Protection

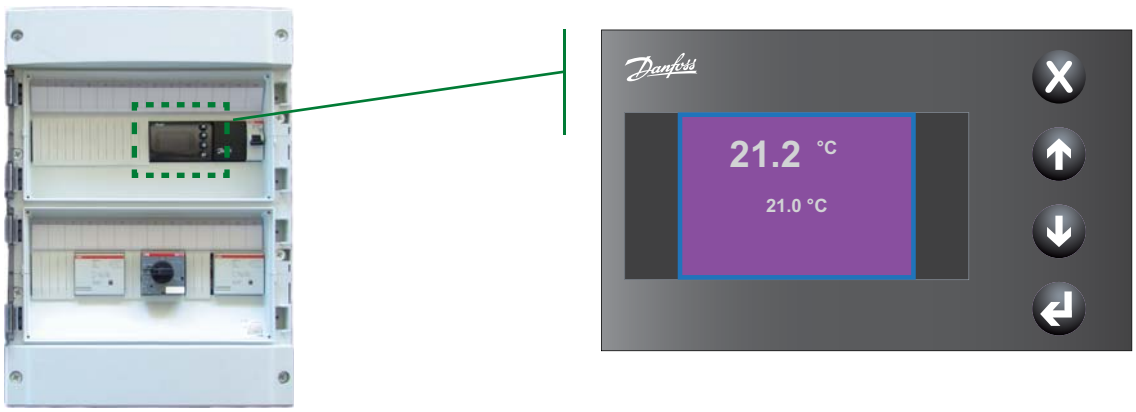
MCX control also works as a heat pump protection.

The compressor is automatically shut off at the setpoint value 50°C to protect the compressor and it is started again when the water temperature is 5°C below the set value.

Delay Setting

The factory setting for delay time is 10 seconds. During operation start-up or service this value can be set to 10 seconds. After operation start-up or service the value must be set to 500 sec.

To change these values, perform the following in the MCX:
Main menu ››› Login ››› Parameters ››› Regulation ››› Config ››› T1



Parameter list

Main Menu				Lvl				
Alarms				0				
		Active Alarms		0				
		Reset Alarms		0				
Login				0				
		Password		0				
Parameters				0				
	Regulation			0				
		Setpoint		0	Min	Max	Default	U.M.
		S1	Setpoint	0	-40,0	150,0	**21,0**	°C
		D1	Differential 1	1	0,0	50,0	**0,1**	K
		D2	Differential 2	1	0,0	50,0	**0,5**	K
		HWS	High Water Set	1	-99,9	99,9	**50,0**	°C
		HWD	High Water Diff	1	0,0	20,0	**5,0**	K
		Config		1				
		T1	HP Delay	1	0	900	**10**	s
I/O Display				0				
Start				1				
	Load Default			1				
Service				0				
	Software info			0				
	Device info			0				

Password: Contact factory

- To enter menu press Enter button
- Use Enter button to highlight value
- Use Up/Down to adjust value
- To confirm option press Enter button, whereby ### will be confirmation
- Use X to escape/back

X = Escape/Back

Up = Adjust value

Down = Adjust value

Enter = Enter/Confirm

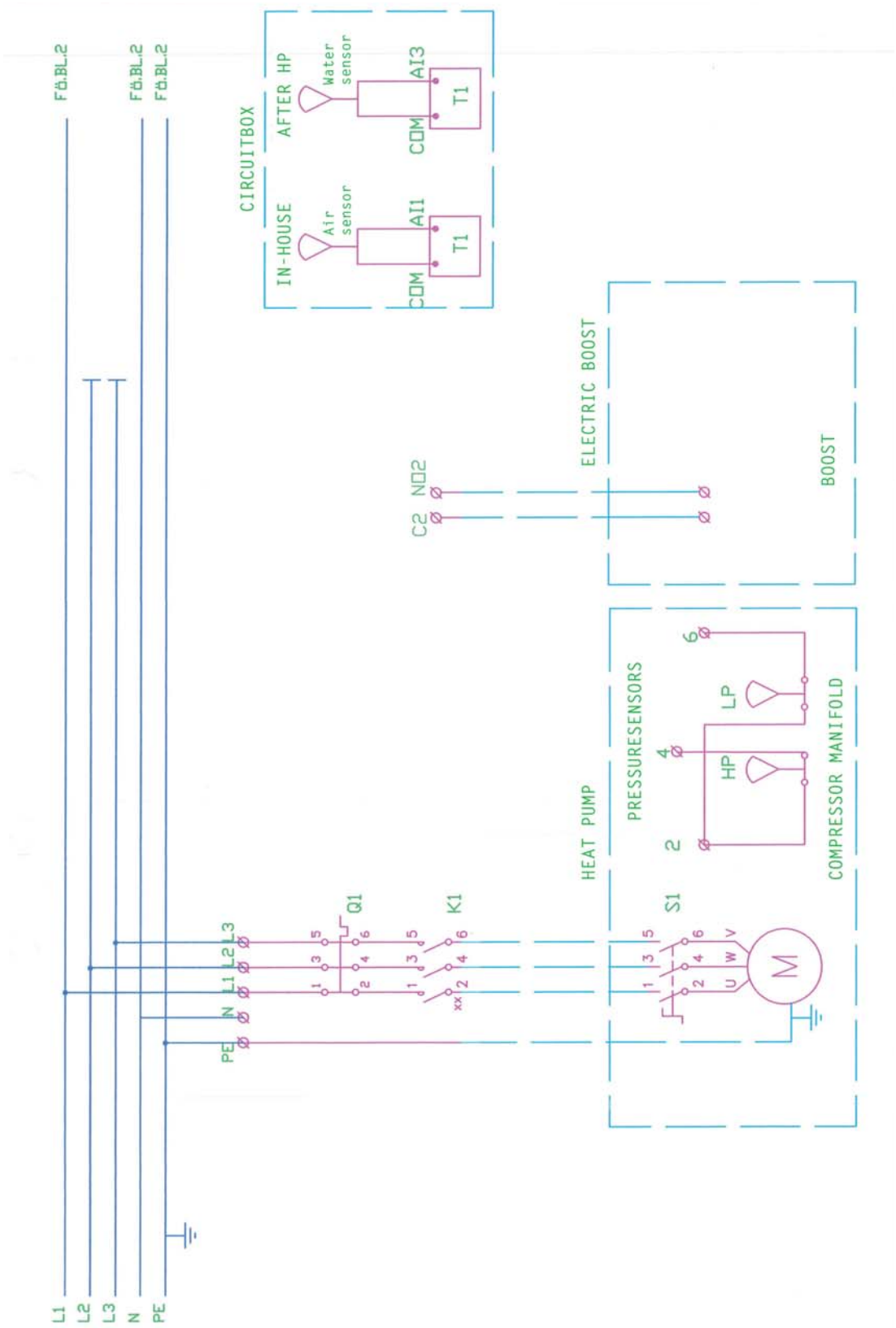
NOTE!

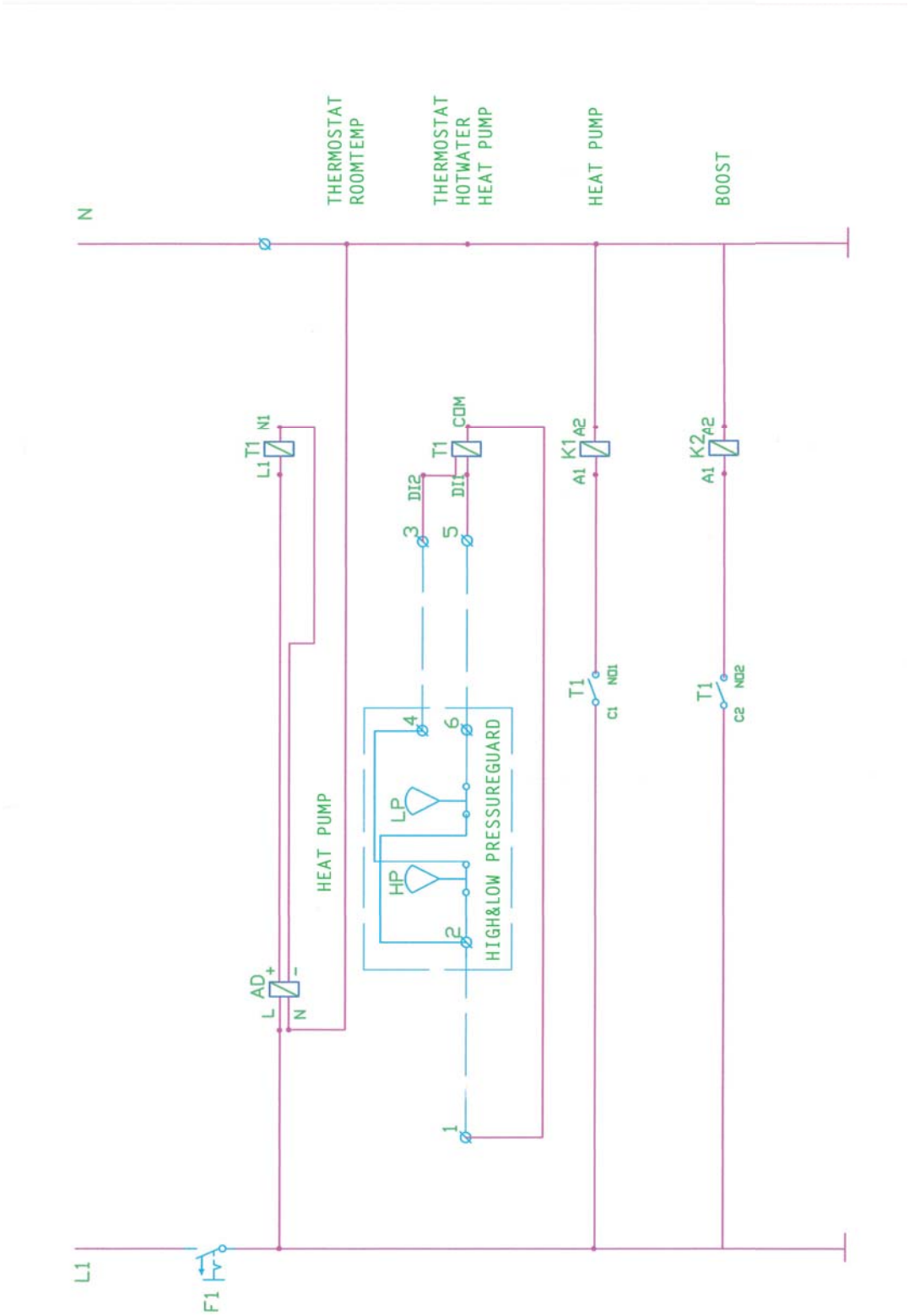
HP Delay should be set to 500 seconds after Installation/Service

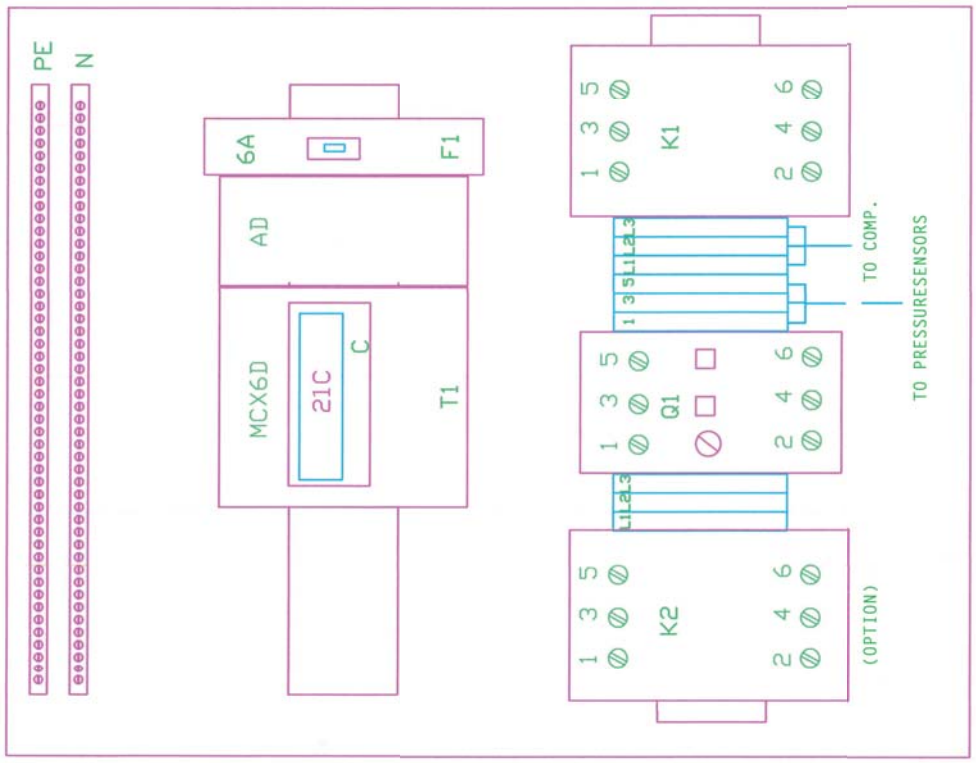
Installation Checklist

Serial Number
Installation Date
Installation Technicians
Property address
Pressure Test ☐ Passed ☐ Failed
Vacuum Drive ☐ Passed ☐ Failed
Additional Heating ☐ Electric Element ☐ Oil Boiler ☐ Gas Boiler ☐ Pellet Boiler ☐ District Heating ☐ _____
Heating System ☐ Radiators ☐ Air Heating Aggregate ☐ Supply Air Aggregate ☐ Floor Heating ☐ _____

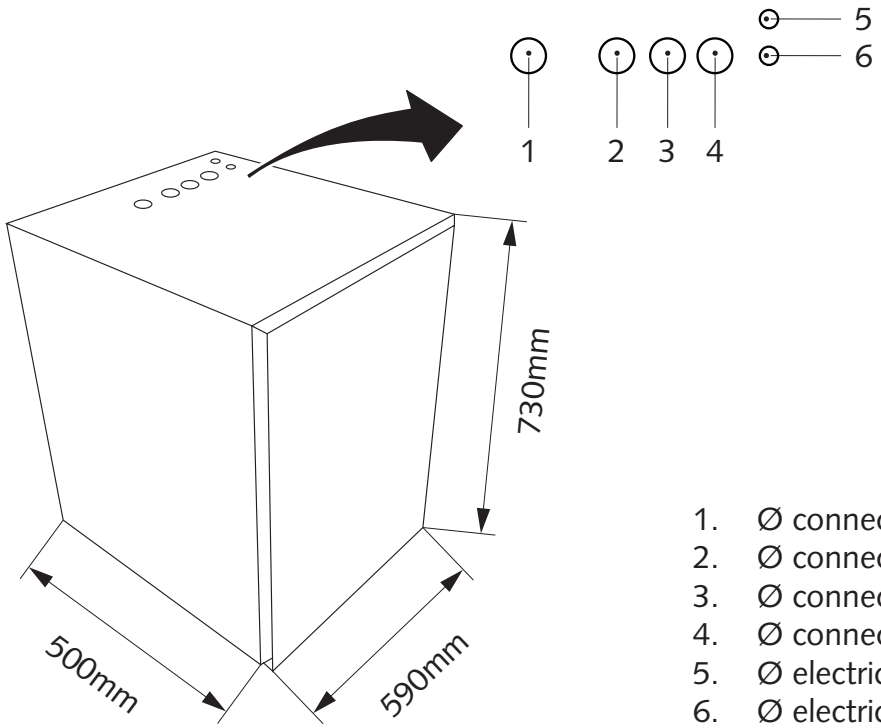
Wiring Diagrams (Three phase 400 V)




N
THERMOSTAT ROOMTEMP
THERMOSTAT HOTWATER HEAT PUMP
HEAT PUMP
BOOST
T1
N1
L1
T1
COM
DI2
DI1
3
5
K1
A2
A1
K2
A2
A1
T1
NO1
C1
T1
NO2
C2
4
6
LP
HP
2
1
HIGH&LOW PRESSUREGUARD
HEAT PUMP
AD
+
-
L
N
L1
F1


PE
N
6A
F1
AD
MCX6D
21C
C
T1
K1
K2
Q1
TO COMP.
TO PRESSURESENSORS
(OPTION)

Measurements and Connections (13kW-18kW)



1. Ø connection for outgoing water
2. Ø connection for incoming water
3. Ø connection for outgoing refrigerant
4. Ø connection for incoming refrigerant
5. Ø electrical connection
6. Ø electrical connection

Technical Data

Model AquaHeat™	**Unit**	13kW	18kW	25kW
Electrical connection		400 V, N3 phases		
Fuse	A	16D		25D
Compressor, type		Scroll		
Compressor, maximum input	kW	4,26	5,66	8,47
Compressor, displacement	m^3/h	14,1	19,3	28,3
Maximum water temperatures	°C	55		
Refrigerant R407c	kg	~1,8	~2	~4
Cut-off pressure min/max R407c	bar	0,5/31		
Minimum water flow	l/min	20	40	65
Dimensions GreenBox (HxWxD)	mm	730x590x500		
Weight GreenBox	kg	95	102	120
JiControl control panel	size	16	16	25

Planning Manual

Electricity

The heat pump module shall always be connected to a permanent electrical installation. We define a permanent electrical installation to be a connection to a power distribution grid.

Transport and Storage

The heat pump is delivered on europallets. If there is a delay before assembly and connection, consider the following:

- The heat pump should be placed in a dry location indoors.

Consider the following during the transport of the AquaHeat™:

- Be careful not to damage the material when lifting and unloading.
- A lifting device or a minimum of 3 people are recommended when unloading.
- The heat pump module must only be transported in the upright position.

Preparations

The evaporator

- We recommend that there is runoff potential (a drain) under the evaporator, whereby condensation may form.
- Monitoring of water quality, see the salt, iron and manganese, etc., high levels may damage the evaporator (copper)
- Water flow must be established (liters / min)

Hole in the wall / floor

NOTE!

Must be performed by skilled personnel

NOTE!

Think of the risk of freezing in the walls

Placement of the GreenBox™

- The heat pump module must stand upright.
- The heat pump module should always be accessible for service.
- No heavy objects is to be placed on top of the heat pump module.
- It is forbidden to jump/step/stand on the heat pump module.
- No objects are to be hung on the piping of the heat pump module.
- The working space in front of the heat pump module should be at least 1,2 meter.
- The measurements (WxDxH) of the heat pump module are 590mm x 500mm x 730mm.

Placement of the JiControl™

The installation of the control panel is to be carried out by authorised technician. The location of the control panel should be agreed with the client and engineer prior to the installation.

- The control panel should be installed near the heat pump module if the heat pump module is placed indoors.
- The control panel should be installed in a room free of moisture and dust.

Placement of the Air Temperature Sensor

The installation of the air temperature sensor is to be carried out by authorised technician. The location of the air temperature sensor should be agreed with the client and engineer prior to the installation.

It is important that the air temperature sensor in the house is placed in the room (or location) where the highest average temperature is required. It is also important that the air temperature sensor is placed in the room where it is affected by the heating system of the room/house, such as floor heating and radiators, and not by any local heat source such as lamps, stoves or direct sunlight. The air temperature sensor should not be placed on external walls.

Additional Heating and Water Heating

Additional heating should be installed if not already installed.

The heat pump might need som assistance from additional heating during the coldest months to maintain a steady temperature. If the heat pump is pressured to keep a indoor temperature higher that its performance and if there are no additional heating, the AquaHeat will have to work continuously and by doing so, not allowing it to have the breaks it need. This can result in lowering its effect.

The different heat pump modules can be connected to all hydronic heating systems (that acts as additional heating) such as district heating, electric element, oil- , gas-, or pellet boiler.

Domestic Hot-water for Households

NOTE!

Constant circulation is needed if pre-heating should work. To achive constant circulation all radiators need to have open valves.

Jifon recommends installing pre-heating when heating domestic hot-water.

Within the Jifon solution, pre-heating of domestic hot-water is preferred. A single-jacket and insulated water heater is installed in the house. The water entering the heater and its mixing valve have already been heated by the hydronic heating system of the house. This is best done with a plate heat exchanger. With this solution the heat pump stands for the largest contribution during the winter. During the summer, almost half of the energy is drawn from the house, acting as a large solar collector.

The benefits of pre-heating are drastically lowered domestic hot-water costs for a small investment together with disburdening the heat pump from the high load required when producing domestic hot-water.

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